

WHAT IS CLAIMED IS:

1. A tooth mobility measuring apparatus comprising:

an impact mechanism which has at least one of
5 an injection mechanism having an injection port which
injects a fluid and a suction mechanism having a vacuum
port which sucks air, and applies an impact force on
a tooth by injection or suction, the impact mechanism
comprising a control mechanism which sets a pressure by
10 injection or suction to a predetermined value;

at least one sensor which detects a displacement
state of the tooth which is moved by the impact force
of the impact mechanism; and

a tooth mobility calculation mechanism which
15 calculates a tooth mobility of the tooth on the basis
of an output signal from the sensor.

2. An apparatus according to claim 1, wherein the
fluid injected by the injection mechanism is a gas.

3. An apparatus according to claim 1, wherein the
20 injection port which injects the fluid or the vacuum
port which sucks air has a structure capable of
simultaneously measuring a plurality of teeth.

4. An apparatus according to claim 1, wherein the
control mechanism may adjust the predetermined value.

25 5. An apparatus according to claim 1, wherein
the injection mechanism may adjust at least one of
an injection state, a number of times of injection, and

an injection timing of the fluid to be impactively injected to the tooth to be inspected.

6. An apparatus according to claim 1, wherein the sensor is a measuring device which irradiates the tooth with light and detects the displacement state of the tooth on the basis of reflected light.

7. An apparatus according to claim 6, wherein the light output from the sensor also has a position confirming function to visually recognize a position of a target to be subjected to injection or suction by the impact mechanism.

8. An apparatus according to claim 1, wherein the sensor is arranged around the injection port or the vacuum port.

9. An apparatus according to claim 1, wherein the displacement state of the tooth to be detected is at least one of a displacement amount and a displacement time of the tooth to be inspected.

10. An apparatus according to claim 1, wherein the tooth mobility calculation mechanism calculates an acceleration of displacement of the tooth on the basis of a maximum displacement amount and a displacement time of the tooth to be inspected.

11. An apparatus according to claim 1, wherein the apparatus further comprises means for locating the injection port or the vacuum port with respect to the tooth to be inspected.

12. A tooth mobility measuring method comprising:

(a) applying an impact force having a predetermined pressure on a tooth to be inspected, the impact force being applied by one of injecting a fluid having a predetermined pressure to the tooth to be inspected and sucking the tooth to be inspected at a predetermined pressure;

(b) detecting a displacement state of the tooth which is moved by the impact force; and

(c) calculating a tooth mobility of the tooth on the basis of the detected displacement state.

13. A method according to claim 12, wherein the fluid in the applying an impact force is a gas.

14. A method according to claim 12, wherein the applying an impact force further comprises a step of adjusting the impact force.

15. A method according to claim 12, wherein the detecting a displacement state of the tooth comprises a step of adjusting at least one of a stress form of the impact, a number of times of impact, and a timing of application of the impact force.

16. A method according to claim 12, wherein the applying an impact force further comprises a step of locating an injection port or a vacuum port at a predetermined position using means for locating the injection port or the vacuum port with respect to the tooth to be inspected.

17. A method according to claim 12, wherein the detecting a displacement state of the tooth comprises a step of irradiating the tooth with light and detecting the displacement state of the tooth on the basis of reflected light.

18. A method according to claim 12, wherein the detecting a displacement state of the tooth comprises a step of detecting the displacement state of the tooth from at least one of a displacement amount and a displacement time of the tooth to be inspected.

19. A method according to claim 12, wherein the calculating a tooth mobility of the tooth on the basis of the detected displacement state comprises a step of calculating the tooth mobility of the tooth on the basis of at least one of the impact force applied to the tooth to be inspected, a maximum displacement amount of the tooth, a displacement time of the tooth, and a distance between an injection port or a vacuum port and the tooth to be inspected.

20. A nozzle used in the tooth mobility measuring apparatus of claim 1, which has an injection port which injects a fluid and/or a vacuum port which sucks air, the injection port and/or vacuum port having a structure capable of applying an impact force on at least one tooth.